



Shaw Environmental & Infrastructure, Inc.

EXCAVATION WORK PLAN

**CITY OF AUSTIN
NORTH SERVICE CENTER
10414 McKALLA PLACE
AUSTIN, TEXAS**

Prepared for:

**City Of Austin
Department of Public Works
505 Barton Springs Road
Austin, Texas**

Prepared by:

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Glossary of Terms

| | |
|--------------|--|
| BPO | benzoyl peroxide |
| bgs | below ground surface |
| CIH | Certified Industrial Hygienist |
| COA | City of Austin |
| DMP | dimethyl phthalate |
| EM | electromagnetics |
| GPR | Ground penetrating radar |
| GSS | GeoSurvey Systems |
| HASP | Health and Safety Plan |
| MEKP | methyl ethyl ketone peroxide |
| MHz | megahertz |
| mg/kg | Milligram per kilogram |
| MWM | Martinez, Wright and Mendez |
| PPE | Personal protective equipment |
| QA/QC | Quality Assurance/Quality Control |
| Shaw | Shaw Environmental, Inc. |
| SS/SSO | site supervisor/ site safety officer |
| Surface Soil | The uppermost foot of soil as measured from ground level |
| TCEQ | Texas Commission on Environmental Quality |
| t-BP | tert-butyl perbenzoate |

1.0 Introduction

At the request of the City of Austin (COA) Department of Public Works, Shaw Environmental, Inc. (Shaw) has prepared the following work plan for review and approval by the COA and the Texas Commission on Environmental Quality (TCEQ), to initiate excavation activities at portions of the COA North Service Center construction site (site). The primary purpose of the excavation will be to investigate subsurface anomalies identified during geophysical surveys currently being conducted by Shaw at the site. The work plan for the geophysical survey "Noninvasive Subsurface Investigation Work Plan" was submitted and approved by the COA and the Texas Commission on Environmental Quality (TCEQ) on November 17, 2003.

The entrance to the site is at 10715 Burnet Road in Austin Texas. The address of the future 24-acre North Service Center, formerly known as the Reichhold Chemical Company Plant, is 10414 McKalla Place.

The COA requested that Shaw develop this excavation work plan after an explosion occurred at the site on November 3, 2003 during excavation activities as a part of site underground utility construction. The geophysical survey currently being conducted at the site is the first step towards locating potential hazardous objects in the subsurface. The data acquired from the survey will be used to plan the excavation of the blast area and other areas that may contain unstable chemical compounds posing a potential threat to future construction activities. This work plan describes the use of special equipment and trained personnel to conduct excavation activities for the purpose of (1) determining the cause of the November 3, 2003 blast; (2) determining if subsurface anomalies located during the geophysical survey are buried containers or other materials; and (3) determining if the containers or other materials in the subsurface at the site pose a health and safety hazard to future construction activities. Included in the work plan are descriptions of the excavation methodologies to be used.

In addition the COA may request that Shaw perform trenching for the installation of underground utilities for the facility currently under construction. The scope, locations and requirements to perform this excavation work have not yet been determined.

1.1 Site Background

The COA purchased the 24-acre site in 1995 and has been developing the site since 2001. On November 3, 2003, during trench excavation activities for the installation of a storm sewer line at the site, an explosion occurred injuring several workers from the pressure blast and resulting debris. The exact cause of the explosion has not yet been determined. However, after initial investigations led by the COA Fire Marshal, the working hypothesis is that during the excavation of the storm sewer line the bucket of the backhoe ruptured an unseen and unidentified buried container, located at a depth of approximately 4-7 feet below ground surface (bgs).

Prior to purchase by the COA, the site was the location of the Reichhold Chemical Plant (Reichhold). The plant manufactured and handled several chemicals used to react with polyester resins made for boat and building products. These included methyl ethyl ketone peroxide (MEKP), benzoyl peroxide (BPO), tert-butyl perbenzoate (t-BP) and dimethyl phthalate (DMP). These chemicals are highly reactive and in some cases flammable, and can explode when subject to shock, vibration or friction (Appendix A). It is possible that a container holding these reactive chemicals in sufficient quantity could have caused an explosion of the size and magnitude experienced on November 3, 2003. According to historical records of plant operations, the blast site was located within, or close to former wastewater treatment ponds used by Reichhold. Information concerning the possibility of any additional buried hazardous materials has not been located, or is not readily available.

An explosion occurred at the MEKP production facility in 1985. After the explosion, Reichhold determined it was no longer economically feasible to continue operations at the plant. That same year Reichhold began site closer activities, submitting a closure plan to the Texas Water Commission (TWC), the predecessor agency to the Texas Commission on Environmental Quality (TCEQ). In 1995 the Texas Natural Resource Conservation Commission (TNRCC), also a predecessor agency to the TCEQ, issued a letter of closure to Reichhold.

On November 3, 2003 Shaw was contacted by the COA and requested to mobilize to the site to collect soil samples from the area of the blast site. On November 4, 2003 Shaw personnel collected three soil samples from the excavator bucket tooth, the bucket itself and from debris that had reportedly been thrown from the trench. In addition, two samples of resin that had reportedly been thrown from the trench were also collected. Shaw accepted custody of three soil samples collected by COA personnel on November 3, 2003 from the excavator tooth, the bucket and from debris found in the trench. All samples were submitted to DHL Analytical Laboratory in Round Rock, Texas for rush analysis. The laboratory analytical report is included in Appendix B. A review of the results by Shaw and COA chemists indicated that degradation products of MEKP, BOP or t-BP were present in the soil. The chemical evidence supported the hypothesis that one of the chemicals produced by Reichhold, probably unstable peroxide, was encountered in a container of some type in sufficient quantity to cause the explosion.

1.2 Objectives

The COA Investigation Team has requested that Shaw develop an approach to investigating the blast site and other subsurface areas where additional excavations are required to complete the planned site improvements. Shaw has met on several occasions with the COA Investigative Team to discuss approaches to investigating the subsurface for potential unstable compounds. As a result of these

meetings and a review of data collected after the explosion, Shaw proposed a noninvasive subsurface investigation that uses electromagnetic (EM) and Ground Penetrating Radar (GPR) geophysical techniques to possibly identify buried materials or containers within the planned excavation areas.

Once the geophysical surveys are completed and the results reviewed by Shaw geophysicists, Shaw and its subcontractors will identify the locations of potential subsurface anomalies in relation to utilities planned for the site development. Shaw will confer with the COA Investigation Team to decide which areas are to be further investigated (in addition to the area of the November 3, 2003 blast site). These areas will be excavated to the depth of the suspected anomaly using specially trained personnel with explosion protective equipment and gear to identify the anomaly and assess if it poses a health and safety hazard to future construction activities. Shaw will confer with the COA on what additional actions required. Soil and material samples may be collected based on field observations or at the request of the COA.

A second excavation objective is for Shaw to pre-trench the remaining utility trenches on the site using the specially trained personnel with explosion protective equipment and gear. The decision to retain Shaw to perform this work will be made by the COA. Prior to commencing pre-trenching activities, Shaw will require that additional information will be made available, including but not limited to the location of the utility trenches to be excavated marked by construction staking, and the required lengths, widths and depths of the excavation.

1.3 Schedule

Shaw is currently scheduled to mobilize the necessary heavy equipment and trained personnel to the site on November 21, 2003. Excavation of the area around the blast site is scheduled for the weekend days of November 22 and 23, 2003. Demobilization from the site is scheduled for November 24, 2003. The schedule for additional mobilizations and work has yet to be finalized, however the COA has determined that additional work in areas where the potential for explosions exist will take place on weekends to minimize any impact to adjacent businesses. Excavations of utility trenches away from the identified anomalies could be performed on weekdays, with the concurrence of the COA. The Shaw Site Supervisor/Site Safety Officer (SS/SSO) Mike Wells, will coordinate work progress in the field under the direction of Shaw Project Manager John Barry, PE.

Shaw will submit daily summaries of the excavation activities and updates to the designated COA representatives. The COA and Shaw will review and discuss the daily summaries and based upon these results determine additional actions to be taken.

1.4 Health and Safety Plan

David Mummert, CIH, of Shaw's Health and Safety Emergency Response Group, prepared the "Site Specific Health and Safety Plan" (SSHSP), which includes activities described in this work plan. Mike Wells, the Shaw Site Supervisor coordinating the excavation activities, will be responsible for implementing the HASP. A copy of the SSHSP was provided to the COA for review on November 17, 2003.

2.0 Pre-Mobilization Activities

Shaw has completed or is currently conducting several activities associated with identifying potentially hazardous conditions and conflicts with planned site construction. These include:

Historical research of plant activities in order to determine the likely nature and locations of potentially hazardous containers;

Coordination with the COA Investigation Team and site construction contractors to determine the location of planned utility installations;

Establishing control points and a base line grid to locate subsurface anomalies and planned utility excavations in the field;

Conducting a geophysical survey of the blast site, the former waste water ponds 1A, 1B, 2 and 3, the route of the proposed 54-inch diameter re-enforced concrete pipe (RCP) storm sewer line that was under excavation when the blast occurred, and any additional areas that may be designated for subsurface investigation; and

Meetings with the COA Investigation Team to plan the scope and course of the investigation.

When the geophysical survey of the areas described above has been complete and the results reviewed, Shaw will present and review these results and the location of subsurface anomalies with the COA Investigation Team. Anomalies located by the geophysical survey will be located on a site map and reviewed with the COA representatives to determine which locations to excavate. Based on this review the extent of the areas to be excavated will be determined. All locations to be excavated will be approved by the COA. The criteria for determining if an area is to be excavated includes, but is not limited to:

Likelihood that the identified anomaly is buried container (Class I, II or III anomaly-see "Noninvasive Subsurface Investigative Work Plan")

Location of identified anomaly is within an area of planned excavation

Location of identified anomaly is within an area that may contain potentially hazardous container (former ponds, drum storage area, etc)

Other criteria determined by COA and Shaw.

The excavation depths will be determined based upon the results of the geophysical survey. The excavation of anomalies that are located at depths greater than the planned construction excavation will be performed at the discretion of the COA.

3.0 Mobilization

Mobilization activities are scheduled to begin Friday November 21, 2003. Mobilization and site preparation will consist of transporting the necessary trained personnel and equipment to the site. Shaw equipment will be mobilized from the nearest operations centers, as well as from local rental companies. Delivery of equipment to the site will be by Shaw-owned transport, subcontracted transport, or by rental company transport. Subcontract services will be mobilized to the site in accordance with the project schedule. Materials and project supplies will be delivered to the project as needed so that the progress of the work is not interrupted. Materials staged at the site will be staged and stored on pallets, blocking, or other means to isolate and protect the materials from the elements by covering with polyethylene sheeting. All fuels, oils and chemicals will be stored in spill-controlled areas in compliance with applicable regulations. As necessary, materials and supplies on-site will have a Material Safety Data Sheet at the project field office.

3.1 Equipment and Personnel

Major equipment to be mobilized will include a PC 200 excavator equipped with a Lexan™ blast shield, and supplied air bottle rack, a frame mounted mobile Lexan™ blast shield for the spotter, Level B personnel protective equipment (PPE) and necessary support equipment, flame resistant clothing, a pollution control truck, radio communicators, a crew pick-up truck, Combustion Gas Indicator (CGI), photo ionization detector (PID), real time respirable dust monitors (PRAM) and other personnel monitoring equipment, perimeter air monitoring equipment, remote thermal sensor, and video camera. Temporary fencing, barricades, or barrier tape around the excavation area will be installed as required by the HASP.

The excavation team consists of four Shaw personnel:

The Site Supervisor/Site Safety Officer (SS/SSO) to oversee field operations, implement the SSHSP, coordinate operations with on-site COA and other personnel.

The Shaw Certified Industrial Hygienist (CIH) will conduct health and safety monitoring, supervise the use proper and effective use of the PPE and health and safety equipment, coordinate with SS/SSO in the implementation of the SSHSP.

The Equipment Operator (operator) will be responsible for the operating the excavator and coordinating the excavation with the SS/SSO.

The Excavation Spotter (spotter) will be responsible for working with the operator, observing the excavation, reporting the presence of containers or materials uncovered by the excavation and additional duties as determined by the SS/SSO.

3.2 Access and Security

Access to the site will be controlled by the COA and the COA construction contractor. Currently the site perimeter is fenced. During daylight hours, access to the site is controlled by the COA construction contractor. After hours, the site is locked and patrolled by the Austin Police Department. Personnel who will enter the excavation area will be required to read and sign the SSHSP and attend a site-specific health and safety orientation meeting. The limits and extent of the excavation area will be determined in the field by the Shaw CIH and marked by Shaw personnel.

3.3 Project Kick-off

A project kickoff meeting will be held to review this work plan, the SSHSP, the results of the geophysical survey, and the project organizational structure and responsibilities. Attendees at the kickoff meeting will include the Shaw Project Manager, the Shaw Site Supervisor, Shaw excavation crew and the appropriate COA Representative(s), including emergency service personnel. The SS/SSO will be on-site throughout the excavation activities and will organize, plan, and execute the day-to-day field activities. All major activities will be coordinated with the Shaw Project Manager and COA Representative.

4.0 Excavation Activities

The COA has requested that Shaw prepare a work plan to excavate the locations of anomalies under high hazard conditions. This consists of the excavation of known or suspected potentially hazardous containers in the subsurface as identified by the geophysical survey or other methods. Excavation under these conditions will require the implementation of additional procedures and safety precautions.

In addition the COA may request that Shaw conduct trenching operations of planned underground utility routes through areas that may pose a risk, but where potentially hazardous containers in the subsurface have not been specifically identified or located. This trenching will require the use of special equipment, personnel and precautions similar to excavations performed under high hazard conditions. The scope schedule and specifications required to perform pre-trenching work will be determined by the COA and Shaw.

4.1 Schedule

The schedule for all excavation activities will be approved by the COA Investigation Team prior to implementation. Excavation is scheduled for the blast area, beginning Saturday November 22, 2003. All other excavation activities that take place under the high hazard conditions are currently limited to weekends and during daylight hours.

4.2 Pre excavation Requirements

4.2.1 Underground Utilities

Shaw will contact the COA Construction Inspector and the COA construction contractor and advise them of the location and estimated depth of the proposed work, and request that the location of all existing underground utilities be delineated. Prior to opening an excavation, the estimated location of underground utilities such as sewer, telephone, fuel, electric, water, or any other underground installation that may be reasonably expected to be encountered during the excavation work shall be determined. Employees should be careful to protect and preserve the utility markings until they are no longer required for excavation. At least 20 feet of clearance between any underground utility and the cutting edge or point of powered excavation equipment will be maintained until the precise location of the utility is determined.

4.2.2 Surface Encumbrance and Vehicular Traffic

All surface encumbrances (trees, poles, boulders, etc.) that may create a hazard to employees shall be removed or supported. Since access to the site will be controlled, hazards from vehicular traffic will be minimal. Shaw personnel exposed to vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflective or high-visibility material.

4.2.3 COA Notification

Prior to commencing excavation activities Shaw will notify the AFD Fire Marshal and the COA Contract Representative of the location, start time and estimated duration of excavation activities. During the excavation of the blast site scheduled for November 22, 2003, Shaw has requested that AFD, COA Bomb Squad and EMT be on site and standing by.

4.2.4 Excavation Site Set up.

Prior to beginning excavation, the removal action work zones will be established. A work buffer zone will be established in a 100-yard area around the excavation and an exclusion zone will be established in a 50-yard area around the excavation as per the requirements the SSHSP. If chemical contamination is suspected or found, a contaminant reduction and support zone will be established within the work buffer zone but outside of the exclusion zone, as per the requirements of the SSHSP. Shaw personnel will define the excavation limits using plastic construction fencing, barricades, barrier tape, marker paint and/or warning signs as required by the SSHSP. All temporary fences and barricades will be removed after the site has been backfilled or work has been completed.

Per the request of the COA, a "blast berm" will be constructed around the perimeter of the trench at the blast site. This berm will be constructed of existing spoils from previous trenching operations. The edge of the berm will be set back 2-3 feet from the edge of the trench and built up as high as practicable without causing sloughing of spoils into the trench, interfering with the operation of the excavator and the line of sight of the spotter. In addition, the outfall of the 54-inch RCP pipe at the detention pond will be plugged with excavated spoils to absorb any shock waves from a potential explosion that would enter the pipe.

Equipment set up includes placement of real time respirable dust monitors on the excavation site perimeter, placement of video camera equipment and placement of blast shield for the spotter. The operator and the spotter will be briefed on the nature, size and construction of peroxide containers (Appendix D).

4.3 High Hazard Excavation

The method of excavation is intended to provide the maximum protection to site workers, while enabling the team to optimize operational effectiveness and efficiency. The method of excavation was developed based upon information obtained from historical and operation records and site observation. With the exception of the operator and the spotter, all personnel will be removed from the exclusion zone once the excavation begins. Under normal conditions, the spotter will remain outside the exclusion zone, but dressed in PPE necessary to enter and work in the exclusion zone if required. The Shaw CIH and SS/SSO will remain in the work buffer zone to observe excavation activities activities. All other personnel will remain outside the work buffer zone during excavation activities until work has halted and the all clear is given by the Shaw CIH and SS/SSO. All Shaw personnel will be in communication with each other by portable radio.

Upon notice to proceed, Shaw will initiate soil excavation and stockpiling from the excavation using the PC 2000 hydraulic excavator. The excavator cab will be outfitted with a specialized clear lexan blast protective shield, customized to protect the glass windshield and prevent injury to the operator. A similar blast shield will be set up for the spotter located approximately 20 to 30 feet back from the excavation. The exact location of the spotter blast shield will be determined by the CIH as necessitated by field conditions. Both the spotter and the operator will be in Level B Supplied Air Respirators and PPE as required by the SSHSP. This is necessary during the excavation in the event a sudden rapid chemical reaction. This chemical reaction could occur from one of the following friction, sunlight, oxygen, introduction of vibration.

When practical, the operator will maintain a clear line of sight with the excavation location. When the operator does not have a clear line of sight, the spotter will enter the exclusion zone and visually inspect excavation areas from behind the blast shield as frequently as needed to identify potential hazards. Spotters will visually inspect the content and consistency of the soil removed to verify the presence of potentially hazardous containers (if any). During these inspections, the operator will remove the bucket from the ditch, throttle down the equipment, and remove his hands from the controls in order to protect ground personnel while they traverse around the excavation.

The operator will remove the soil from the excavation area in 1-foot lifts, setting soils to one-side of the excavation. When a potentially hazardous container is uncovered, the operator will cease excavation, remove the excavator bucket from the hole and notify the SS/SSO. Once excavation is halted and a period of 5 minutes or more has elapsed, the potential of a rapid chemical reaction is reduced. The area will be checked by the Shaw CIH with real time air monitoring equipment and the remote thermal sensor. After the Shaw CIH has determined that it is safe to approach, the SS/SSO will visually inspect the container from behind the blast shield. If it is determined that the container is a potential hazard, the excavation will be halted and the Austin Fire Marshal and COA Representative will be notified. Shaw and the COA representative will confer on the appropriate course of action when each container is discovered.

If it is determined that a container can be removed from the excavation and the Shaw CIH have cleared the area, a sample of the soil from around the container will be collected at the COA representatives discretion, using the bucket of the excavator. The location and depth of the soil from which the container was removed will be surveyed.

If the container is determined to be non-hazardous (empty, already disturbed container) or identified as a non hazardous object (pipe, construction debris) the object will be segregated from previously excavated soils and set aside on plastic sheeting for further inspection. At the discretion of the Shaw SS/SSO and

approval by the CIH, soil samples may be collected. If approved by the COA representative, the samples will be submitted for laboratory analysis.

After excavation has been completed, any necessary samples have been collected and the area has been surveyed, the excavation will be backfilled using the previously excavated spoils. If for any reason it is deemed necessary to leave an excavation open, Shaw personnel will define the excavation limits plastic construction fencing, barricades, barrier tape or marker paint required by the HASP. All temporary fences and barricades will be removed after the site has been backfilled or work has been completed.

4.4 Trenching

The equipment, personnel and methods required to trench the planned underground utility routes will be similar to those used under high hazard excavations conditions. The determination of if trenching will be performed under high hazard conditions and any modifications to the level of PPE required for those operations will be evaluated by the Shaw CIH and SS/SSO. At a minimum blast shields and explosion protective clothing will be used by the spotter and operator, as per the requirements of the SSHSP. The location, lengths, widths, depths and specifications of the trenches will be provided to Shaw by COA representatives. If during the trenching, a potentially hazardous container is identified, excavation activities will cease and the procedures for addressing the container described in Section 4.3 of this work plan will be implemented.

5.0 Soil Sampling and Chemical Analysis

5.1 Soil Sample Collection

At the discretion of the COA, soil samples from excavated areas will be collected using the excavator bucket. After the bucket has been removed from the excavated area by the operator, discrete soil samples may be collected with a disposable, or decontaminated spades, trowels, scoop, or other sampling equipment as necessary. Field personnel will wear disposable latex or nitrile gloves during the handling of all sampling equipment and during sampling. Sampling equipment will not be placed directly on the ground or other potentially contaminated surface prior to sampling activities. Samples will be adequately marked for Identification and placed on ice in coolers for delivery to the analytical laboratory.

Evidence of collection, shipment, laboratory receipt, and laboratory custody until disposal will documented through Chain-of-Custody forms that list each sample and the individuals performing the sample collection, shipment, and receipt. Each individual who has the sample(s) in their possession will sign the chain of custody.

5.2 Chemical Analysis

At the direction of the COA, soil samples will be analyzed using methods outlined EPA SW-846 for volatile organic compounds (VOCs) (Method 8260B), semivolatile organic compounds (SVOCs) (Method 8270C), nitrate (Method 9056), pH (Method 9045C), and ignitability (Method 1010). Tentatively identified compounds (TICs) will also be reported for samples analyzed for VOCs and SVOCs. DHL Analytical Laboratory (DHL) located in Round Rock, Texas, will perform sample analysis.

6.0 Air Monitoring

Air monitoring will be conducted to characterize personnel exposures and fugitive emissions from site contaminants. The principal contaminants of concern are methyl ethyl ketone peroxides (MEKP), benzoyl peroxides (BPO), tert-butyl perbenzoate (t-BP) and dimethyl phthalate (DMP). The results of previous investigations and soil sampling indicate it is unlikely there are chemical contaminants in sufficient concentrations to present a hazard to workers inside the exclusion zone or to observers outside the exclusion zone. The use of Level B respiratory protection and real time air monitoring is a precaution in case of explosive conditions. Work area air monitoring at the North Austin Service Center site will be by direct reading methods. A lower explosive/oxygen (LEL/O₂) meter and a photoionization detector will be used to survey excavated soil and debris. A total of four particulate meters (Data RAMs) will be used at the site. Two Data RAMs will be placed at the perimeter of the buffer zone in the down-wind locations, one will be placed up-wind and one will be used by the CIH to monitor work activities. The CIH will be responsible for placement of air monitoring equipment and maintaining field logs of the results. Air monitoring results will be used to determine the effectiveness and/or need for dust control methods and to trigger action levels as specified in SSHSP.

Calibration and maintenance of air monitoring equipment will follow manufacture specifications and documented. Re-calibration and adjustment of air monitoring equipment will be completed when site conditions and equipment operation reveal the need.

7.0 Demobilization

Upon completion of the excavation activities, Shaw equipment and Emergency Response personnel will be removed. If an excavation area is required to be left open, the temporary fencing will be left up. Efforts will be made to remove loose soil and other potentially contaminated materials from the wheels and undercarriage of the vehicles. A site walk will be conducted by the Shaw SS/S and the COA representative to determine the need for final site cleanup activities, if any. Upon approval of the COA Representative, all site equipment and personnel will be demobilized.

8.0 Field Documentation

To provide evidence of satisfactory work performance and the basis for subsequent activities, results of the field investigation and sampling will be completely documented. Information will be recorded on standardized forms in indelible ink. Documentation will include a Field Activity Daily Log (FADL), sample collection data forms, field instrument calibration records, and chain of custody forms. The Shaw SS/SSO and CIH working in the field will each keep a FADL. Each page of the FADL will be signed and dated by the person preparing the form. Items to be included, as appropriate, will be:

- Date of activities
- Field activity subject
- General work activity
- Unusual events
- Changes to plans and specifications
- Visitors
- Communication with TCEQ, Municipal, County or State, or other personnel
- Weather conditions
- Personnel on-site.

Field logs will be collected and maintained by the Field Supervisor until completion of the field work, or until they are submitted to the project central file.

Visual documentation of excavation activities in the blast area will be collected using a tripod-mounted video camera set up in the area of the excavation. The camera will be turned on prior to commencing excavation activities and set to the record mode. The camera will be pointed at the excavation and allowed to record remotely during high hazard excavation activities. When excavating in other areas with potential hazardous containers in the subsurface, the spotter will record footage of any containers located during the excavation after the CIH has determined that it safe to approach the excavation. A video log containing date/time/duration and subject of the footage collected will be kept and copies of the tapes will be submitted to the COA with the final report, if required.

Photographic evidence of any containers located during the excavation will be collected using a digital camera, once the Shaw CIH has determine the excavation is safe to approach. Photographic logs including shot number, direction of view, description of subject, time, date, and photographer name will be kept.

9.0 Reporting

A report will be prepared that presents the findings of the excavation activities. The report will include discussions of the technical methods and field procedures used to conduct the excavation activities, data evaluation, interpreted results, site photographs, analytical results, a site map locating the areas of excavation, and conclusions and recommendations. A final report (5-copies) will be submitted to the COA.

APPENDIX A

Material Safety Data Sheets

APPENDIX B

DHL Analytical Results

APPENDIX C

Shaw Excavation Standard Operating Procedures

APPENDIX D

Photographs and Descriptions of Peroxide Containers

Form ARF-AL
Page 1 of 2
Part 1 of 1
09210414203812RX



ANALYTICAL REPORT

Form ARF-C

Page 2 of 2
09210414203812RX

SEP 21 2004

Date _____

Laboratory Group Name 04I-2916-01

General Set Comments

Method Reference: NIOSH Manual of Analytical Methods (NMAM), 4th ed., 8/15/94.
The reported results have not been blank corrected.

LODs for samples 04I27925 and 04I27926: 20 ug/sample for benzoyl peroxide and
10 ug/sample for benzoic acid.

LOD for samples 04I27927 and 04I27930: 10 ug/sample for benzoyl peroxide.

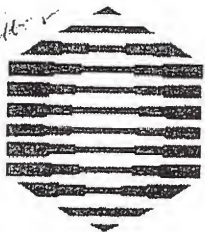
Sample Comments

| Laboratory Number | Comment |
|----------------------|---|
| 04I27925 | Diluted 20X for both analytes. See set comments for LODs. |
| 04I27926 | Diluted 20X for both analytes. See set comments for LODs. |
| 04I27927 | Diluted 10X for benzoyl peroxide. See set comments for LOD. |
| 04I27930 | Diluted 10X for benzoyl peroxide. See set comments for LOD. |

General Lab Comments

The results provided in this report relate only to the items tested.
This page is the concluding page of the report.

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547
Phone (801) 266-7700 Web Page: www.datachem.com
FAX (801) 268-9992 E-mail: lab@datachem.com



**DATA
CHEM**
LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status 04I-2916-01
☒ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY 3-DAY JAT
DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____ 4. Quote No. _____
3. Company Name Shaw Environmental DCL Project Manager Rand Potter
Address 850 N Major Express Way
Austin Texas 5. Sample Collection
Person to Contact John Barry, Peter Tilton Sampling Site COA NSC
Telephone (S12) 929-1190/214-277-8817 Industrial Process N/A
Fax Telephone 512-928-0077/214-277-8600 Date of Collection 9/15/04
E-mail Address john.barry@shawcorp.com Time Collected 13:20
Billing Address (if different from above) Peter Tilton@shawcorp.com Date of Shipment 9/15/04
(same) Chain of Custody No. _____

6. REQUEST FOR ANALYSES

| Laboratory Use Only | Client Sample Number | Matrix* | Sample Volume | ANALYSES REQUESTED - Use method number if known | Units** |
|---------------------|----------------------|-------------|---------------|---|---------|
| <u>04I27925</u> | <u>12111</u> | <u>Wipe</u> | <u>n/a</u> | <u>Benzoyl Peroxide / Benzoic Acid</u> | |
| <u>26</u> | <u>12114</u> | <u>Wipe</u> | | | |
| <u>27</u> | <u>12119</u> | | | | |
| <u>28</u> | <u>12124</u> | | | | |
| <u>29</u> | <u>12125</u> | | | | |
| <u>30</u> | <u>12130</u> | <u>Wipe</u> | <u>n/a</u> | <u>Benzoyl Peroxide / Benzoic Acid</u> | |
| | | | | | |
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| | | | | | |
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* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other

** 1. ug/sample 2 mg/m³ 3 ppm 4 % 5. ☒ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards Benzoyl Peroxide / Benzoic Acid (Trace)

7. Chain of Custody (Optional)

| | |
|------------------------------------|--------------------------------|
| Relinquished by <u>[Signature]</u> | Date/Time <u>9-15-04 13:53</u> |
| Received by <u>[Signature]</u> | Date/Time <u>9-15-04 13:53</u> |
| Relinquished by <u>[Signature]</u> | Date/Time <u>9-15-04 12:45</u> |
| Received by <u>[Signature]</u> | Date/Time <u>9/16</u> |
| Relinquished by <u>[Signature]</u> | Date/Time <u>9/16/04</u> |
| Received by _____ | Date/Time _____ |

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